

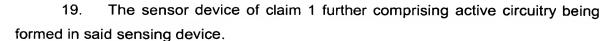
Claims

1. An implantable microfabricated sensor device for measuring a physiologic parameter of interest within a patient, said sensor comprising:

an implantable sensing device, said sensing device being a micro electromechanical system (MEMS) comprising a substrate, an integrated inductor formed on the substrate, at least one sensor responsive to the physiologic parameters and being formed at least in part on the substrate, a plurality of conductive paths electrically connecting said integrated inductor with said sensor, said integrated inductor, said sensor and said conductive paths cooperatively defining an LC tank resonator.

- 2. The sensor device of claim 1 wherein said sensor is a capacitive sensor having a fixed electrode and a moveable electrode.
- 3. The sensor device of claim 2 wherein said fixed electrode is formed on said substrate.
- 4. The sensor device of claim 1 wherein said integrated inductor includes a magnetic core and a winding comprised of a conductive material about said magnetic core.
- 5. The sensor device of claim 4 wherein said magnetic core includes a plate member formed on a first face of said substrate.
- 6. The sensor device of claim 5 wherein said magnetic core further includes a second plate member, said second plate member being formed on a second face of said substrate and located generally opposite of said first plate member.
- 7. The sensor device of claim 6 further comprising a post extending through said substrate and connecting said first plate to said second plate.

- 8. The sensor device of claim 5 wherein said winding is formed within said first plate.
- 9. The sensor device of claim 4 wherein said magnetic core includes first and second plate members connected to one another by a post.
- 10. The sensor device of claim 9 wherein said windings are about said post.
- 11. The sensor device of claim 10 wherein said windings are about said post and adjacent to said first plate.
- 12. The sensor device of claim 5 further comprising a cap layer formed over said plate member.
- 13. The sensor device of claim 12 wherein said cap layer includes a portion defining a moveable electrode of said sensor.
 - 14. The sensor device of claim 12 wherein said cap layer is conductive.
 - 15. The sensor device of claim 12 wherein said cap layer is doped silicon.
 - 16. The sensor device of claim 2 wherein said sensor is a pressure sensor.
- 17. The sensor device of claim 2 wherein said sensor is a temperature sensor.
- 18. The sensor device of claim 2 wherein said sensor is a chemical sensor.



- 20. The sensor device of claim 19 wherein said active circuitry is formed within a cap layer formed over said integrated inductor.
 - 21. The sensor device of claim 1 wherein said sensor device is wireless.
- 22. The sensor device of claim 1 wherein said sensing device is monolithic.
 - 23. The sensor device of claim 1 further comprising at least two sensors.
- 24. The sensor device of claim 23 wherein said two sensors sense the same physiologic parameter.
- 25. The sensor device of claim 23 wherein said two sensors sense different physiologic parameters.
- 26. The sensor device of claim 1 wherein said sensor is a capacitive sensor including a fixed electrode and a moveable electrode, said fixed and moveable electrodes defining a chamber therebetween, said chamber being in fluid communication with a displacement cavity.
- 27. The sensor device of claim 26 wherein said displacement cavity is defined within said substrate.
- 28. The sensor device of claim 1 wherein said sensor is a capacitive sensor having a fixed electrode and a moveable electrode, said fixed and moveable electrodes being electrically coupled by first and second traces to said integrated inductor, said first and second traces being electrically isolated from one another.

- 29. The sensor device of claim 28 wherein said traces are isolated by a dielectric layer therebetween.
- 30. The sensor device of claim 28 wherein said traces are isolated by a p-n junction structure.
- 31. The sensor device of claim 1 as part of a sensing system further comprising a non-implantable readout device, said readout device including a second inductor adapted to magnetically couple with said integrated inductor to read changes in said LC tank resonator as a result of said sensor sensing the physiologic parameter of interest.